

**PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:  
Ulf DE FAIRE  
Johan FROSTEGÅRD

Serial No.: 10/599,934

Filed: October 13, 2006

For: PHOSPHORYLCHOLINE CONJUGATES  
AND CORRESPONDING ANTIBODIES

Group Art Unit: 1644

Examiner: Unknown

Atty. Dkt. No.: EPCL:014US

Confirmation No.: 6769

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this correspondence is being electronically filed with the United States Patent and Trademark Office via EFS-Web on the date below:

July 10, 2007  
Date

Steven L. Highlander

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the documents listed on attached Form PTO-1449 be considered by the Examiner and made of record. Copies of the listed documents required by 37 C.F.R. § 1.98(a)(2) are enclosed for the convenience of the Examiner.

In accordance with 37 C.F.R. §§ 1.97(g), (h), this Information Disclosure Statement is not to be construed as a representation that a search has been made, and is not to be construed to

be an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

The present Information Disclosure Statement is being filed prior to the receipt of a first Official Action reflecting an examination on the merits, and hence is believed to be timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with the filing of this Information Disclosure Statement, however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to these materials, the Commissioner is authorized to deduct the appropriate fees from Fulbright & Jaworski Deposit Account No.: 50-1212/EPCL:014US.

Applicants respectfully request that the listed documents be made of record in the present case.

Respectfully submitted,



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Attorney for Applicants

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Date: July 10, 2007

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U.S. Patent Documents <i>See Page 1</i>	Foreign Patent Documents <i>See Page 1-2</i>	Other Art <i>See Page 2-6</i>	

### U.S. Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Name	Class	Sub Class	Filing Date of App.
	A1	2004/185039	9/23/04	Kohler and Morgan	424	131.1	8/29/03
	A2	2004/185514	9/23/04	Frostegård	435	7.92	4/1/04
	A3	2004/185515	9/23/04	Frostegård	435	7.92	4/1/04
	A4	2004/185516	9/23/04	Frostegård	435	7.92	4/1/04
	A5	4,203,893	5/20/80	Pery <i>et al.</i>	260	121	8/30/78
	A6	5,455,032	10/3/95	Kenny and Lang	424	194.1	7/29/93
	A7	5,475,100	12/12/95	Hashino <i>et al.</i>	536	23.53	8/19/93
	A8	5,702,727	12/30/97	Amkraut and Yang	424	491	3/6/95
	A9	5,955,584	9/21/99	Ditlow <i>et al.</i>	530	388.2	4/26/93
	A10	6,375,925	4/23/02	Tsimikas <i>et al.</i>	424	149	11/22/99
	A11	6,780,605	8/24/04	Frostegård	435	7.21	4/6/01

### Foreign Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Country	Language
	B1	EP 0257778	3/2/88	EP	English
	B2	EP 0466505	1/15/92	EP	English
	B3	EP 1095271	5/2/01	EP	English
	B4	EP 1335742	8/20/03	EP	English
	B5	JP 02188532	7/24/90	Japan	Japanese (English Abstract)
	B6	WO 90/12632	11/1/90	WIPO	English
	B7	WO 92/10203	6/25/92	WIPO	English
	B8	WO 93/18161	9/16/93	WIPO	English
	B9	WO 94/14454	7/7/94	WIPO	English

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	B10	WO 98/21581	5/22/98	WIPO	English
	B11	WO 99/08109	2/18/99	WIPO	English
	B12	WO 99/33522	7/8/99	WIPO	English
	B13	WO 00/02046	1/13/00	WIPO	English
	B14	WO 01/32070	5/10/01	WIPO	English
	B15	WO 01/68119	9/20/01	WIPO	English
	B16	WO 0188547	11/22/01	WIPO	English
	B17	WO 02/080954	10/17/02	WIPO	English
	B18	WO 04/091520	10/28/04	WIPO	English
	B19	WO 04/106486	12/9/04	WIPO	English

### Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C1	"Assessment and prevention of inflammatory risk in cardiovascular disease," <i>Athera Biotechnologies</i> , Company Profile, October – December 2004.
	C2	Bergmark <i>et al.</i> , "Patients with early-onset peripheral vascular disease have increased levels of autoantibodies against oxidized LDL," <i>Arterioscler Thromb Vasc Biol.</i> , 15:441-445, 1995.
	C3	Berliner <i>et al.</i> , "Minimally modified low density lipoprotein stimulates monocyte endothelial interactions," <i>J. Clin Invest.</i> , 85:1260-1266, 1990.
	C4	Binder <i>et al.</i> , "Pneumococcal vaccination decreases atherosclerotic lesion formation: molecular mimicry between <i>Streptococcus pneumoniae</i> and oxidized LDL," <i>Nature Medicine</i> , 9(6):736-743, 2003.
	C5	Binder <i>et al.</i> , "Innate and acquired immunity in atherogenesis," <i>Nature Medicine</i> , 8(11):1218-1226, 2002.

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Exam. Init.	Ref. Des.	Citation
	C6	Binder <i>et al.</i> , "Molecular Mimicry between Epitopes of Oxidized LDL and <i>Streptococcus pneumoniae</i> ," <i>Abstracts from American Heart Association Scientific Sessions</i> , 2005.
	C7	Binder, "Defining innate and adaptive immune mechanisms in the atheroprotective effect of immunization with oxidized low-density lipoproteins," <i>Dissertation Abstracts International</i> , 63(9):4109, 2005.
	C8	Bochkov <i>et al.</i> , "Protective role of phospholipid oxidation products in endotoxin-induced tissue damage," <i>Nature</i> , 419:77-81, 2002.
	C9	Briles <i>et al.</i> , "Anti-phosphorylcholine antibodies of the T15 idiotype are optimally protective against <i>Streptococcus pneumoniae</i> ," <i>J. Exp Med.</i> , 156:1177-1185, 1982.
	C10	Chesebro and Metzger, "Affinity labeling of a phosphorylcholine binding mouse myeloma protein," <i>Biochemistry</i> , 11:766-771, 1972.
	C11	Chyu <i>et al.</i> , "Changes in innate and adaptive humoral immune responses and indices of atherosclerosis in aging," <i>53<sup>rd</sup> Annual Scientific Session of the American College of Cardiology</i> , 2004.
	C12	Fei <i>et al.</i> , "Oxidised LDL modulates immune-activation by an IL-12 dependent mechanism," <i>Atherosclerosis</i> , 169:77-85, 2003.
	C13	Frostegård <i>et al.</i> , "Biologically modified LDL increases the adhesive properties of endothelial cells," <i>Atherosclerosis</i> , 90:119-126, 1991.
	C14	Frostegård <i>et al.</i> , "Cytokine expression in advanced human atherosclerotic plaques: dominance of pro-inflammatory (Th1) and macrophage-stimulating cytokines," <i>Atherosclerosis</i> , 145:33-43, 1999.
	C15	Frostegård <i>et al.</i> , "Induction of T-cell activation by oxidized low density lipoprotein," <i>Arterioscler Thromb.</i> , 12:461-467, 1992.
	C16	Frostegård <i>et al.</i> , "Oxidized low density lipoprotein induces differentiation and adhesion of human monocytes and the monocytic cell line U937," <i>Proc. Natl. Acad. Sci. USA</i> , 87:904-908, 1990.
	C17	Frostegård <i>et al.</i> , "Platelet-activating factor and oxidized LDL induce immune activation by a common mechanism," <i>Arterioscler Thromb Vasc Biol.</i> , 17:963-968, 1997.

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Exam. Init.	Ref. Des.	Citation
	C18	Frostedgård, "Autoimmunity, oxidized LDL and cardiovascular disease," <i>Autoimmunity Reviews</i> , 1:233-237, 2002.
	C19	Gearhart <i>et al.</i> , "Heterogeneity of the BALB/c antiphosphorylcholine antibody response at the precursor cell level," <i>Journal of Experimental Medicine</i> , 141(1):56-71, 1975.
	C20	Harnett and Harnett, "Immunomodulation by filarial nematode phosphorylcholine-containing glycoproteins," In: <i>Parasitic Nematodes</i> , CABI Publishing, Wallingford, UK, 399-414, 2001.
	C21	Harnett and Harnett, "Phosphorylcholine: friend or foe of the immune system," <i>Immunol. Today</i> , 20:125-129, 1999.
	C22	Heery <i>et al.</i> , "Oxidatively modified LDL contains phospholipids with platelet-activating factor-like activity and stimulates the growth of smooth muscle cells," <i>J. Clin. Invest.</i> , 96:2322-2330, 1995.
	C23	Hulthe <i>et al.</i> , "Antibodies to oxidized LDL in relation to carotid atherosclerosis, cell adhesion molecules, and phospholipase A <sub>2</sub> ," <i>Arterioscler Thromb Vasc Biol.</i> , 21:269-274, 2001.
	C24	Kameyama <i>et al.</i> , "Convenient plasmid vectors for construction of chimeric mouse/human antibodies," <i>FEBS Letters</i> , 244(2):301-306, 1989.
	C25	Karvonen <i>et al.</i> , "Immunoglobulin M type of autoantibodies to oxidized low-density lipoprotein has an inverse relation to carotid artery atherosclerosis," <i>Circulation</i> , 108:2107-2112, 2003.
	C26	Kearney, "Immune recognition of OxLDL in atherosclerosis," <i>Journal of Clinical Investigation</i> , 105(12):1683-1685, 2000.
	C27	Kim <i>et al.</i> , "I-PLA2 activation during apoptosis promotes the exposure of membrane lysophosphatidylcholine leading to binding by natural immunoglobulin M antibodies and complement activation," <i>J. Exp. Med.</i> , 196(5):655-665, 2002.
	C28	Knoflach <i>et al.</i> , "Immunity to heat shock proteins and atherosclerosis," In: <i>Heat Shock Proteins and Inflammation</i> , Birkhaeuser Verlag, Basel, Switzerland, 159-173, 2003.
	C29	Lim <i>et al.</i> , "One-step 2-minute test to detect typhoid-specific antibodies based on particle separation in tubes," <i>Journal of Clinical Microbiology</i> , 36(8):2271-2278, 1998.
	C30	Padilla <i>et al.</i> , "Levels of natural IgM antibodies against phosphorylcholine in healthy individuals and in patients undergoing isolated limb perfusion," <i>Journal of Immunological Methods</i> , 293:1-11, 2004.

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	C31	Palinski <i>et al.</i> , "Immunization of low density lipoprotein (LDL) receptor-deficient rabbits with homologous malondialdehyde-modified LDL reduces atherogenesis," <i>Proc. Natl. Acad. Sci. USA</i> , 92:821-825, 1995.
	C32	PCT International Search Report, dated February 24, 2006.
	C33	Pockley <i>et al.</i> , "Serum heat shock protein 70 levels predict the development of atherosclerosis in subjects with established hypertension," <i>Hypertension</i> , 42:235-238, 2003.
	C34	Purkall <i>et al.</i> , "Opsonization of <i>Actinobacillus actinomycetemcomitans</i> by immunoglobulin G antibody reactive with phosphorylcholine," <i>Infection and Immunity</i> , 70(11):6485-6488, 2002.
	C35	Rose and Afanasyeva, "Autoimmunity: busting the atherosclerotic plaque," <i>Nature medicine</i> , 9(6):641-642, 2003.
	C36	Salonen <i>et al.</i> , "Autoantibody against oxidised LDL and progression of carotid atherosclerosis," <i>The Lancet</i> , 339(8798):883-887, 1992.
	C37	Schenkein <i>et al.</i> , "Antiphosphorylcholine antibody levels are elevated in humans with periodontal diseases," <i>Infection and Immunity</i> , 67(9):4814-4818, 1999.
	C38	Schenkein <i>et al.</i> , "Phosphorylcholine-dependent cross-reactivity between dental plaque bacteria and oxidized low-density lipoproteins," <i>Infection and Immunity</i> , 69(11):6612-6617, 2001.
	C39	Shaw <i>et al.</i> , "Natural antibodies with the T15 idiotype may act in atherosclerosis, apoptotic clearance, and protective immunity," <i>The Journal of Clinical Investigation</i> , 105(12):1731-1740, 2000.
	C40	Shaw <i>et al.</i> , "The autoreactivity of anti-phosphorylcholine antibodies for atherosclerosis-associated neo-antigens and apoptotic cells," <i>The Journal of Immunology</i> , 170(12):6151-6157, 2003.
	C41	Shoji <i>et al.</i> , "Inverse relationship between circulating oxidized low density lipoprotein (oxLDL) and anti-oxLDL antibody levels in healthy subjects," <i>Atherosclerosis</i> , 148(1):171-177, 2000.
	C42	Simpson and Beachey, "Adherence of group A streptococci to fibronectin on oral epithelial cells," <i>Infection and Immunity</i> , 39(1):275-279, 1983.
	C43	Spira <i>et al.</i> , "T15 PC binding monoclonal antibodies retain specificity when they switch from IgM to IgG," <i>Journal of Immunology</i> , 140(8):2675-2680, 1988.

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	C44	Stemme <i>et al.</i> , "T lymphocytes from human atherosclerotic plaques recognize oxidized low density lipoprotein," <i>Proc. Natl. Acad. Sci. USA</i> , 92:3893-3897, 1995.
	C45	Subbanagounder <i>et al.</i> , "Evidence that phospholipid oxidation products and/or platelet-activating factor play an important role in early atherogenesis: in vitro and in vivo inhibition by WEB 2086," <i>Circa Res.</i> , 85:311-318, 1999.
	C46	Svenungsson <i>et al.</i> , "Risk factors for cardiovascular disease in systemic lupus erythematosus," <i>Circulation</i> , 104:1887-1893, 2001.
	C47	Takeoka <i>et al.</i> , "Function of fibrinogen gamma-chain dodecapeptide-conjugated latex beads under flow," <i>Biochem. Biophys. Res. Commun.</i> , 312(3):773-779, 2003.
	C48	Todd <i>et al.</i> , "Immunologic memory to phosphorylcholine VI. Heterogeneity in light chain gene expression," <i>European Journal of Immunology</i> , 15(2):177-183, 1985.
	C49	Trolle <i>et al.</i> , "Intranasal immunization with protein-linked phosphorylcholine protects mice against a lethal intranasal challenge with <i>Streptococcus pneumoniae</i> ," <i>Vaccine</i> , 18(26):2991-2998, 2000.
	C50	Wu <i>et al.</i> , "Autoantibodies to OxLDL are decreased in individuals with borderline hypertension," <i>Hypertension</i> , 33:53-59, 1999.
	C51	Xu <i>et al.</i> , "Induction of Arteriosclerosis in normocholesterolemic rabbits by immunization with heat shock protein 65," <i>Arterioscler. Thromb.</i> , 12:789-799, 1992.
	C52	Zanchetti <i>et al.</i> , "Calcium antagonist lacidipine slows down progression of asymptomatic carotid atherosclerosis: principal results of the European Lacidipine Study on Atherosclerosis (ELSA), a randomized, double-blind, long-term trial," <i>Circulation</i> , 106:2422-2427, 2002.
	C53	Zanchetti <i>et al.</i> , "Risk factors associated with alterations in carotid intima-media thickness in hypertension: baseline data from the European Lacidipine Study on Atherosclerosis," <i>J. Hypertension</i> , 16:949-961, 1998.

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EXAMINER: /Sharon Wen/

DATE CONSIDERED: 07/13/2010

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